

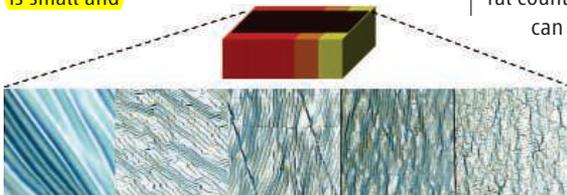
recovery of the reefs has been slower than typically observed in more-continental reefs, probably because of the isolation of the Seychelles, which would reduce the rate of dispersal of larvae from elsewhere. If bleaching events are regular, the prospects for recovery are not good. — AMS

Proc Natl. Acad. Sci. U.S.A. **103**, 8425 (2006).

MATERIALS SCIENCE

Buckle Up for Softy

Tensile or compressive tests to measure the elastic modulus of a material are often limited by the size and shape of test specimens. Local indentation probing is useful for hard metals or ceramics, but less so for soft materials. The elastic modulus is a stiffness indicator but also reflects such properties as adhesion and swelling. Researchers are seeking alternative methods to measure complex samples such as a contact lens, which is small and



Hydrogel buckling patterns (cross-linker concentration increases from left to right).

soft and may need to be studied under hydrated conditions.

Wilder *et al.* address this problem by inverting a technique used to characterize thin films. They measure the modulus of a compressed polymer by coating the surface with a stiffer material of known modulus. The periodicity of the buckling response depends primarily on the modulus ratio between the stiff film and softer substrate, and thus the unknown modulus can be determined from optical measurements of

the buckled film. Modulus values from measurements of a model poly(dimethylsiloxane) system coated with a polystyrene film agreed well with those obtained from compression tests. The technique can also quantify spatial variations in modulus through a single experiment, as demonstrated on a hydrogel sample that was prepared with a spatial concentration gradient of cross-linking agent. — MSL

Macromolecules **39**, 10.1021/ma060266b (2006).

CHEMISTRY

Anion Induction

In traditional asymmetric catalysis, a chiral catalyst binds directly to the reagent and thereby facilitates the reaction path to one product isomer while hindering the path to its enantiomer, or mirror image. Mayer and List show that asymmetric induction can also arise from pairing of an achiral cationic catalyst with a chiral counterion. Chiral amine derivatives

can promote transfer hydrogenation of α,β -unsaturated aldehydes. The authors have now probed the same reaction class using protonated morpholine, an achiral amine, in combination with binaphthol-based chiral phosphate anions. This catalyst system is particularly effective for aromatic substrates, yielding product distributions that favor one enantiomer by 98:1 or higher ratios. Sterically unhindered aliphatic substrates, such as citral and farnesal, are also reduced in high enantiomeric excess. Because the reaction proceeds in aprotic solvent and requires a secondary, rather than tertiary, amine salt catalyst, the authors propose that induction occurs via an ion pair between the phosphate and an iminium intermediate, formed by amine displacement of the aldehyde oxygen. — JSY

Angew. Chem. Int. Ed. **45**, 10.1002/anie.200600512 (2006).

10.1002/anie.200600512 (2006).

Q: How can I organize and protect my back issues of *Science*?

A: Custom-made library file cases!



Designed to hold 12 issues, these handsome storage boxes are covered in a rich burgundy leather-like material. Each slipcase includes an attractive label with the *Science* logo.

Great gift idea!

One \$15
Three \$40
Six \$80

..... Order Form

**TNC Enterprises Dept.SC
P.O. Box 2475
Warminster, PA 18974**

Please send me _____ slippcases.

Add \$3.50 per slipcase for postage and handling. PA residents add 6% sales tax. Cannot ship outside U.S.

Name (Please print) _____

Address (No P.O. Box numbers please) _____

City, State, Zip _____

Bill my: Master Card VISA AmEx

Name _____

Card No. _____ Exp. Date _____

Signature _____

Order online:
www.tncenterprises.net/sc

Unconditionally Guaranteed



www.stke.org

<< Keeping LAT Out

T cell anergy prevents self-reactive T cells that escape elimination in the thymus from responding. T cell anergy is associated with decreased interleukin 2 (IL-2) production and decreased proliferation in response to antigen-specific stimulation. Hundt *et al.* show that although phosphorylation of the tyrosine kinase ZAP-70 is not impaired, phosphorylation of the ZAP-70 substrate, linker of activated T cells (LAT), is decreased. LAT serves as a scaffold recruiting various downstream effectors to the immunological synapse. Thus, lack of LAT phosphorylation prevents activation of phospholipase Cg1 (PLCg-1) and phosphatidylinositol 3-kinase (PI3K). There was no decrease in LAT abundance in the anergic cells, but LAT was selectively excluded from the immunological synapse because of reduced palmitoylation of LAT, which may explain the altered signaling properties in anergic T cells. — NG

Immunity **24**, 513 (2006).